

Remarks:

Claims 1-3, 6-15, 17-21, 23-27, 29-34, 36-41, and 44-60 remain for consideration in this application. Claims 4-5, 16, 22, 28, 35, and 42-43 have been canceled. Claims 1, 6, 17-19, 24, 27, 29-30, 32, 37, 40, and 44-48 have been amended. Claims 52-60 are newly added. The claim amendments that were made are explained in detail below.

Turning now to the office action, the Examiner raised an obviousness-type double patenting rejection against claims 1, 5, 11-13, 19, 23, 25, 32, 36, and 38 in light of claims 15, 28, and 40 of U.S. Patent No. 6,740,469 to Krishnamurthy et al. The Applicants respectfully disagree with this rejection. The '469 patent is concerned with developer-soluble, anti-reflective coating compositions. The compositions of the '469 patent each include a polymer having a formula as shown in claim 1. This formula has an X group, and the '469 patent teaches that the X group is a light-attenuating moiety. This is important in the '469 patent because light absorption is critical to an anti-reflective coating. However, in the presently claimed invention, Applicants are concerned with a composition that can be formed into a film having high light transmittance (see e.g., page 8, lines 22-25). As a result, the variables of the claimed formula have been selected to avoid light attenuating moieties. This is not an obvious variation of the '469 invention. In fact, the '469 patent teaches away from this variation. In addition to the foregoing reasons, the rejected claims have been amended to recite that n is 3-10. This recitation excludes polymers and limits the recited structure to oligomers. It is submitted that this is a further reason why the double-patenting rejection should be withdrawn. The foregoing should resolve any issues remaining pursuant to paragraphs 2 and 3 of the action as these claims are clearly not obvious in view of the teachings of the '469 patent.

The Examiner rejected claims 15, 27, and 40 under 35 U.S.C. § 112, second paragraph, alleging that the claims were unclear for citing examples that are not oligomers or polymers. This rejection has been overcome because the Applicants have deleted glycerol ethoxylate, pentaerythritol ethoxylate, pentaerythritol propoxylate from these claims.

The Examiner also rejected claims 1-5, 11-13, 19-23, 25, 32-36, 38, 48, and 50 as being anticipated by JP 09-031385 to Inoue et al. Each of the independent claims except claim 59 now

recites one of the following: (1) that the composition can be heated to yield a film having a refractive index of at least about 80% at a wavelength of about 633 nm and at a film thickness of about 0.5  $\mu\text{m}$ ; or (2) that the composition can be heated to yield a film having a percent transmittance of at least about 80% at a wavelength of about 633 nm and at a film thickness of about 0.5  $\mu\text{m}$  (see newly added claims 52-57). Support for this amendment can be found at page 8, lines 18-31. Neither of these properties is taught or suggested by Inoue et al. Rather, Inoue et al. is concerned with a printing ink composition. A high refractive index or high light transmission would be highly undesirable in a printing ink as printing ink should have color. Inoue et al. also teach the addition of a pigment to give their ink color (see paragraph [0014]). Thus, these claims are not anticipated by Inoue et al.

Furthermore, these claims are not obvious in view of Inoue et al. for a couple of reasons. First, the Applicants submit that Inoue et al. would not be appropriate to cite in an obviousness rejection as it is concerned with nonanalogous art. One of ordinary skill in the art looking to make the inventive high refractive index coatings for use in solid-state devices would not look to a reference teaching how to make a printing ink composition.

Assuming without conceding that the Inoue et al. reference is analogous art, there is simply no teaching or suggestion in the reference to modify the printing ink composition to obtain the claimed invention. In fact, Inoue et al. would actually teach away from this modification as they teach the addition of pigments. It is respectfully submitted that all rejections predicated upon the Inoue et al. reference have been overcome.

The Examiner rejected claims 1-4, 10-13, 15-22, 25, 27-35, 38, and 40-51 as being anticipated by EP 0 125 638 to Nanao et al. Independent claims 1, 48, 52, and 55 now recite that each  $R^1$  is individually selected from the group consisting of alkoxys, alkyloxyalkoxys, beta-diketones, beta-diketonates, and alkanolamines. This limitation was originally found in claim 5 (now canceled), which the Examiner rejected as being obvious in view of the combined teachings of the Nanao et al. reference and those of U.S. Patent No. 6,303, 270 to Flaim et al. However, the Applicants respectfully submit that: (1) there is no teaching or suggestion by either reference to

make this modification; and (2) the Nanao et al. and Flaim et al. references are nonanalogous art. With respect to the latter point, Nanao et al. are concerned with a ceramic film, while Flaim et al. are concerned with a photoresist (i.e., photosensitive) composition. The properties of ceramic films, photoresist compositions, and high refractive index compositions are very different, and the goals of one of ordinary skill in the area of high refractive index compositions would be completely different from the goals of one of ordinary skill in the art of ceramic films. Furthermore, one of ordinary skill in either area would not look to the Flaim et al. teachings pertaining to a photosensitive composition as neither would want photosensitivity in their composition. For these reasons, claims 1, 48, 52, and 55 are patentable over the Nanao et al. reference, either alone or when considered in conjunction with the Flaim et al. patent.

Independent claims (19, 32, 53, and 54) are also patentable over the Nanao et al. reference, again when viewed alone or in combination with the other art of record. Specifically, claims 19 and 53 require the presence of a cured, metal oxide and organic hybrid layer, while claims 32 and 54 recite the step of heating the composition to a temperature of from about 150-300°C. Support for these amendments can be found on page 7, lines 18-20. The Nanao et al. reference teaches heating the composition to temperatures of 600-1,000°C to yield a ceramic film of  $\alpha$ -iron oxide (page 6, lines 10-14), barium titanate (page 6, lines 29-33), barium ferrite (page 7, lines 8-11), or nickel spinel ferrite (page 7, lines 25-29). Thus, the cured Nanao et al. film would not be a metal oxide and organic hybrid layer because these extreme temperatures would thermally decompose all organic material, and the description of the resulting films in the examples confirms this conclusion. These claims cannot be anticipated by the teachings of Nanao et al.

Furthermore, claims 19, 32, 53, and 54 are not obvious in view of Nanao et al. First, the Applicants still maintain that the Nanao et al. reference is nonanalogous art as discussed above and it, therefore, improper to cite in an obviousness rejection. Second, even if the Examiner considered it to be analogous art, one of ordinary skill in the art would not look to the Nanao et al. ceramic film and be motivated to modify the process of forming it by heating at a temperature of from about 150-

300°C so that a ceramic film is not formed. It simply would not make sense. Nanao et al. would teach away from this modification.

Claims 56-59, which depend from claims 19, 53, 32, and 54, respectively, recite that the layer has a metal oxide:organic weight ratio of from about 35:65 to about 80:20. Support for this amendment can be found in line 27 on page 8, in Table 1 on page 10, and in Table 4 on page 12. These dependent claims are further patentable over Nanao et al. for the same reasons as independent claims 19 and 53-54. That is, Nanao et al. would not have organic material remaining in their cured, ceramic film.

The only remaining rejections raised by the Examiner was an obviousness rejection against dependent claims 5-9, 14, 23-24, 26, 36-37, and 39 based upon the combined teachings of the Nanao et al. and Flaim et al. references. However, these claims are also patentable for the same reasons discussed above with respect to the independent claims.

Finally, newly added claim 59 was added to claim glycerol ethoxylate, pentaerythritol ethoxylate, pentaerythritol propoxylate as the organic material in the composition as these compounds were deleted to overcome a 35 U.S.C. § 112 rejection as discussed above. In addition to reciting these compounds as the organic material, claim 59 also recites organic oligomers comprising a functional group operable to form a covalent or coordinate-covalent bond with said organometallic oligomer. This claim is patentable over the art of record because none of that art teaches or suggests the named compounds or organic oligomers. Rather, Krishnamurthy et al., Inoue et al., Nanao et al., and Flaim et al. each teach that any organic material used in addition to the organometallic polymer or compound be a polymer. This distinction is important because it assists in providing the improved properties of the high refractive index film.

It is believed that no further issues remain in this application. A Notice of Allowance is respectfully requested. Any fee which is due in connection with this Statement should be applied against Deposit Account No. 19-0522.

Respectfully submitted,

By 

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